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Dated: 4/14/03

Signature: Anna P. Lucey
(Anna P. Lucey)

Docket No.: BVTP-P04-506
(PATENT)

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of:
Allen et al.

Application No.: 10/010723

Group Art Unit: 3763

Filed: December 6, 2001

Examiner: Thompson, Kathryn L.

For: MICRONEEDLE DEVICES AND METHODS
OF MANUFACTURE AND USE THEREOF

INFORMATION DISCLOSURE STATEMENT (IDS)

Commissioner for Patents
Washington, DC 20231

Pursuant to 37 CFR 1.56, the attention of the Patent and Trademark Office is hereby directed to the references listed on the attached Form PTO/SB/08. It is respectfully requested that the information be expressly considered during the prosecution of this application, and that the references be made of record therein and appear among the "References Cited" on any patent to issue therefrom.

This Information Disclosure Statement is filed more than three months after the U.S. filing date, OR more than three months after the date of entry of the national stage of a PCT application, AND after the mailing date of the first Office Action on the merits, whichever occurs first, but before the mailing date of a Final Rejection or Notice of Allowance.

This is Part Two of a two-part Information Disclosure Statement. Part One, citing U.S. Patent art, was filed electronically on the above signed date. The fee of \$180.00 set forth under 37 C.F.R. 1.17(p) was paid online with Part One.

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Those patent(s) or publication(s) which are not marked with an asterisk (*) on the attached Form PTO/SB/08 are not supplied because they were previously cited by or submitted to the Office in prior application no. 09/316,229 filed 05/21/1999, now PAT 6,334,856 which is relied upon in this application for an earlier filing date under 35 U.S.C. 120.

While the information and references disclosed in this Information Disclosure Statement may be "material" pursuant to 37 CFR 1.56, it is not intended to constitute an admission that any patent, publication or other information referred to therein is "prior art" for this invention unless specifically designated as such.

In accordance with 37 CFR 1.97(g), the filing of this Information Disclosure Statement shall not be construed to mean that a search has been made or that no other material information as defined in 37 CFR 1.56(a) exists. Applicants further reserve the right to take appropriate action to establish the patentability of the disclosed invention over the listed documents should one or more of the documents be applied against the claims of the present application.

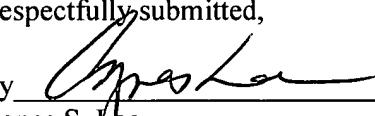
The Commissioner is hereby authorized to charge any deficiency in the fees filed, asserted to be filed or which should have been filed herewith (or with any paper hereafter filed in this application by this firm) to our Deposit Account No. 18-1945, under Order No. BVTP-P04-506.

Dated:

4/4/03

Respectfully submitted,

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PTO/SB/08A (10-01)

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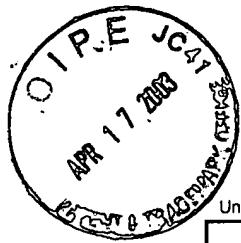
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Substitute for form 1449A/PTO				Complete if Known	
				Application Number	10/010723
				Filing Date	December 6, 2001
				First Named Inventor	Mark G. Allen
				Art Unit	3763
				Examiner Name	Thompson, Kathryn L.
Sheet	1	of	4	Attorney Docket Number	BVTP-P04-506

U. S. PATENT DOCUMENTS					
Examiner Initials*	Cite No. ¹	Document Number	Publication Date	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		Number-Kind Code ² (if known)	MM-DD-YYYY		
AA		2,893,392	07/07/1959	Wagner et al.	
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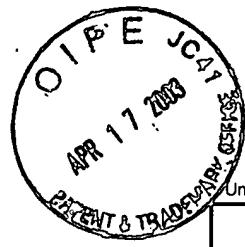
FOREIGN PATENT DOCUMENTS					
Examiner Initials*	Cite No. ¹	Foreign Patent Document	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		Country Code ³ -Number ⁴ -Kind Code ⁵ (if known)			
BQ	EP 0497620	05/08/1992	Carnegie-Mellon University		
BR	EP 0 652 600	5/1995			
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CB	WO 98/28037	07/02/1998	Alza Corporation		
*CC	WO 00/48669	08/24/2000	Biovalve Technologies		
*CD	WO 00/74763	12/14/2000	Georgia Tech Research		

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¹ Applicant's unique citation designation number (optional). ² See attached Kinds Codes of USPTO Patent Documents at www.uspto.gov or MPEP 901.04. ³ Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). ⁴ For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the application number of the patent document. ⁵ Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST. 16 if possible. ⁶ Applicant is to place a check mark here if English language Translation is attached.

OTHER PRIOR ART – NON PATENT LITERATURE DOCUMENTS					
Examiner Initials	Cite No. ¹	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc), date, page(s), volume-issue number(s), publisher, city and/or country where published.			
	*CE	Abrams, S.B. Versatile biosensor is compact and cheap. Biophotonics International 32-34 (Jan/FEB 1998).			
	CF	Amsden, B.G. and Goosen, M.F.A. Transdermal Delivery of Peptide and Protein Drugs: an Overview. AIChE J. 41, 1972-1977 (Aug. 1995).			
	CG	Brumlik, C.J. and Martin, C.R. Template Synthesis of Metal Microtubules. J. Am. Chem. Soc. 113, 3174-3175 (1991).			
	*CH	Chun, K. et al. Fabrication of Array of Hollow Microcapillaries Used for Injection of Genetic Materials into Animal/Plant Cells. Jpn. J. Appl. Phys. 38, 279-281 (1999).			
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	CK	Edell, D.J. et al. Factors Influencing the Biocompatibility of Insertable Silicon Microshafts in Cerebral Cortex. IEEE Transactions on Biomedical Engineering 39, 635-643 (1992).			

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Application Number	10/010723
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First Named Inventor	Mark G. Allen
Art Unit	3763
Examiner Name	Thompson, Kathryn L.
Attorney Docket Number	BVTP-P04-506

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	*CL	Eleventh Annual International Workshop on Micro Electro Mechanical Systems, Heidelberg, Germany (25-29 Jan. 1998). IEEE Catalog No. 98CH36176	
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	CN	Frazier, A.B. et al. Two Dimensional Metallic Microelectrode Arrays for Extracellular Stimulation and Recording of Neurons. IEEE 0-7803-0957 pp. 195-200 (Feb. 1993).	
	CO	Haga et al. Transdermal Iontophoretic delivery of insulin using a photoetched microdevice. J. Controlled Release 43, 139-149 (1997).	
	CP	Hashmi, S. et al. Genetic Transformation of Nematodes Using Arrays of Micromechanical Piercing Structures. BioTechniques 19, 766-770 (Nov. 1995).	
	CQ	Henry et al. Microfabricated Microneedles: A Novel Method to Increase Transdermal Drug Delivery. J. Pharm. Sci. 87, 922-925 (1998).	
	CR	Henry, S. et al. Micromachined Needles: A Novel Approach to Transdermal Drug Delivery. J. Pharm. Sci. 87, 922-925 (Aug. 1998).	
	CS	Hoffert, S.P. Transcutaneous Methods Get Under the Skin. The Scientist 12, no. 16 (17 Aug. 1998).	
	*CT	Infiltrator Intramural Drug Delivery: A New Generation of Drug Delivery Catheters from InterVentional Technologies, Inc., San Diego, CA (1997).	
	CU	Jaeger, R.C. <u>Introduction to Microelectronic Fabrication</u> in the Addison-Wesley Modular Series on Solid State Devices, G.W. Neudeck and R.F. Pierret, eds. Vol. 5, Addison-Wesley Publishing Co., Inc. (May 1993).	
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	CW	Laermer, F. et al. Bosch Deep Silicon Etching: Improving Uniformity and Etch Rate for Advanced MEMS Application. IEEE Catalog No. 99CH36291C, ISBN: 0-7803-5194-0 from the Twelfth IEEE International Conference on Micro Electro Mechanical Systems, Orlando FL, (17-21 Jan. 1999).	
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	CY	Lehmann, V. Porous Silicon – A New Material for MEMS. IEEE ISBN: 0-7803-2985-6/96 (1996).	
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	DB	Najafi, K. and Hetke, J.F. Strength Characterization of Silicon Microprobes in Neurophysiological Tissues. IEEE Transactions on Biomedical Engineering 37, 474-481 (May 1990).
	DC	101 Uses for Tiny Tubules. Science 247 (23 March 1990).
	DD	Percutaneous Absorption, R.L. Bronaugh and H.I. Maibach, eds. Marcel Dekker, Inc., New York (1989).
	DE	Prausnitz, M.R. Reversible Skin Permeabilization for Transdermal Delivery of Macromolecules. Critical Reviews in Therapeutic Drug Carrier Systems 14, 455-483 (1997).
	DF	Proceedings of the IEEE Micro Electro Mechanical Systems Conference 1987-1998; Rai-Choudhury, ed., Handbook of Microlithography, Micromaching & Microfabrication (SPIE Optical Engineering Press, Bellingham, WA 1997).
	DG	Quan, M. Plasma etch yields microneedle arrays. Electronic Eng. Times, p.63 (13 July 1996).
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	DI	Runyan, W.R. and Bean, K.E. <u>Semiconductor Integrated Circuit Processing Technology</u> , Addison-Wesley Publishing Co. (1990).
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	DM	<u>Transdermal Drug Delivery</u> , J. Hadgraft and R.H. Guy, eds. Marcel Dekker, Inc., New York (1989).
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	DP	Zuska, P. Microtechnology Opens Doors to the Universe of Small Space. MD&DI (1997).

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

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